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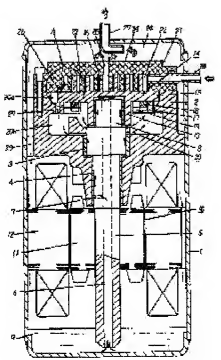
(54) SCROLL COMPRESSOR

(57)Abstract:

PURPOSE: To provide a scroll compressor excellent in low vibration and low noise characteristics and durability.

CONSTITUTION: An oil feed passage passing in sequence a lubricating oil feed source on which discharge gas pressure is exerted, a back pressure chamber 20 of turning scroll 14, and a suction chamber 22, is provided, and an oil feed passage control device is arranged between the back pressure chamber 20 and suction chamber 22 on the way of the oil feed passage. This oil feed passage control device is provided with an opening degree adjusting function for continuously changing an opening degree of throttle passage in order to control a pressure difference between the back pressure chamber 20 and suction chamber 22 within a predetermined range.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to a scroll compressor and relates to the back pressure control to a turning scroll.
[0002]
[Description of the Prior Art]The scroll compressor which is capturing the spotlight as a compressor which was being put in practical use with development of a machine tool and was provided with low vibration and the low noise characteristic in recent years, For example, an inhalatorium is in a peripheral part, a discharge port is established in the vortical central part as shown also in JP,59-49386,A, and since the flow of compression fluid is one way, generally it is known well that the flow resistance of a high speed driving time is small, and compression efficiency is high. The compressor of this kind of high pressure gas sealing shell structure, The composition it is indicated to drawing 6 that it is known for the composition or JP,55-148994,A it is indicated to drawing 5 that it is known for JP,59-49386,A, Or the composition etc. of JP,57-68579,A of a gestalt which upset the compressor of aforementioned JP,55-148994,A to the bottom upwards were proposed, and the lubrication of each sliding part was constituted as follows, reducing the thrust force of shaft orientations by the suitable setting pressure of a backpressure chamber. Namely, the fixing scroll lap 123 is fixed to the panel 121 attached to the body frame 102 which supports the driving shaft 105 movably in drawing 5, The turning scroll lap 116 is fixed to the lap supported disc 115, and this lap supported disc 115, It is arranged in the state of **** with a very small crevice between the panel 121 and the body frame 102 in the backpressure chamber 120, Via Oldham ring 118 provided with the rotation inhibition function and the partition function of a backpressure chamber, it is supported movably so that revolution is possible, and it circles with the driving shaft 105 which has the motor 110 and eccentric part for a drive in an end further. And the regurgitation of the gas inhaled and compressed is carried out into the sealing shell 101. The lubricating oils separated from discharged gas are collected by the sump of the pars basilaris ossis occipitalis of the sealing shell 101, It is led to the backpressure chamber 120 in the state of high pressure using a centrifugal pump operation, decompressing gradually through the very small crevice between the oil hole 106 which carried out the opening to the lower end of the driving shaft 105, and was established in it by the eccentric state, and the bearing which supports the driving shaft 105 movably. The lubricating oil furthermore decompressed by even the intermediate pressure of a discharge pressure and suction pressure through the very small crevice between the sliding parts of Oldham ring 118 was composition which carries

out the lubrication of the sliding part in the process in which it flows into the inhalatorium 122 through the balance passage 126 of the small hole established in the panel 121. Even if the backpressure chamber 220 is divided in pressure with Oldham ring 218 in drawing 6, there is nothing, The balance passage 226 of the small hole established in the lap supported disc 215 of the turning scroll although there was also no free passage with the inhalatorium 222 is open for free passage with the compression space 240 of the suitable position, This balance passage 226 is opened and closed when the lap supported disc 215 circles, and it constitutes the intermittent oil supply passage between the backpressure chamber 220 and the compression space 240, In the sump 209 of the pars basilaris ossis occipitalis of the sealing shell 201 filled with discharged gas, the very small crevice between the bearings which are provided in the driving shaft 205 and support the oil hole 206 and the driving shaft 205 movably is open for free passage, and the sliding part of the backpressure chamber 220 and each bearing part of the driving shaft 205 are refueled by a centrifugal pump and differential pressure.

[0003]

[Problem(s) to be Solved by the Invention]However, in the composition of the oil supply passage where the opening of the restriction passage to [out of the backpressure chamber 120 like above-mentioned drawing 5] the inhalatorium 122 was fixed. The temperature of the lubricating oil which flows into the inhalatorium 122 from the backpressure chamber 120 according to a compressor operating speed, the load condition of a height pressure side, etc. differs, the viscosity of a lubricating oil also changes in connection with it, and lubricous oil flow entrance into a room differs from the backpressure chamber 120 to the inhalatorium 122. As a result, even if suitable setting out of the pressure of the backpressure chamber 120 is carried out by the specific operating condition, when compressor operating conditions differ, the pressure of the backpressure chamber 120 carries out an abnormal rise, or carries out an abnormal drop. By that, the turning scroll 114 is pressed too much by the fixed scroll 134, or, The turning scroll 114 separates from the fixed scroll 134, and causes the abnormal drop of the anomalous attrition of a sliding part, power loss, and compression efficiency, and. Excess and deficiency arose also in the lubricating oil quantity which flows into the inhalatorium 122, and there was a problem of causing the abnormal temperature rise resulting from decline in the compression efficiency by lubricous oil flow ON fault size and the oil film sealing effect fall of the compression space crevice by lubricous oil deficiency. Since the opening of the balance passage 226 which opens between the backpressure chamber 220 and the compression space 240 for free passage was fixed also in drawing 6, there was the same problem as the above. It is considered as the policy to which the abnormal rise of the pressure of a backpressure chamber is not carried out, and the composition of (1) JP,57-76291,A, (2) JP,58-160583,A, JP,58-176489,A, JP,58-183887,A, and (3) JP,56-165787,A is proposed. That is, (1) is composition which makes a control valve opened for traffic, makes the fluid of a backpressure chamber flow into an inlet side, and controls a backpressure chamber pressure, when a backpressure chamber and an inlet side are made to open for free passage via a control valve and a backpressure chamber pressure carries out an abnormal rise. (2) is composition which opens a control valve, makes it open for free passage to the inlet-side or discharged gas pressure side, and controls a backpressure chamber pressure, when a backpressure chamber pressure becomes higher than a discharge pressure. (3) is the composition of carrying out decompression adjustment of the discharged gas, leading to a backpressure chamber, and maintaining a backpressure chamber to an intermediate pressure, carrying out differential pressure oil supply of the oil by the side of a discharge pressure at the sliding surface

concerning a backpressure chamber. However, since it flowed into the backpressure chamber or only the gas mass flow which flows out of a backpressure chamber was controlled by composition of (1), consideration of the oil supply to a backpressure chamber was not carried out, but there was a problem that wear of the member concerning a backpressure chamber was remarkable. There was a problem [press / as a result / too much / that a backpressure chamber pressure is only controlled by composition of (2) lower than a discharge pressure and / to the fixed scroll side / a turning scroll] that early and friction loss had large wear of the sliding surface between a turning scroll and a fixed scroll. In the composition of (3), since the oil path and gas introducing path to a backpressure chamber are another composition, it is hard to distribute an oil throughout a backpressure chamber, oil deficiency arises selectively, and printing arises. Since decompression adjustment of the viscous small discharged gas was carried out and the backpressure chamber pressure was controlled, there was a problem that decompression adjustment variation was large and the setting pressure of a backpressure chamber was difficult. Differential pressure oil supply is carried out from the composition which combined (1) - (3), i.e., the sump on which a discharged gas pressure acts, through a suitable diaphragm oil supply passage in a backpressure chamber, Only when it is open for free passage via a control valve as shown in (1) and a backpressure chamber pressure carries out the abnormal rise of between a backpressure chamber and inhalatoriums (or compression space), can consider the composition which is opened for traffic in a control valve and returns a backpressure chamber pressure to normal stress, but. Compression load and a backpressure chamber pressure change rapidly by repeating opening and closing between a backpressure chamber and an inhalatorium (or compression space), There was an important problem of spoiling the original low vibration and low noise characteristic of a scroll compressor by the gas blow-by sound etc. which are made when gas blows an inhalatorium (or compression space) from change of load torque, allophone generating which originates with the butter of a turning scroll, and a backpressure chamber. On the other hand, it is considered as the policy to which the abnormal drop of the pressure of a backpressure chamber is not carried out, and the composition of JP,58-160580,A is proposed. This composition is composition controlled so that provide the passage which opens a backpressure chamber and a discharged gas aisle side for free passage, make the control valve in the middle of a passage opened for traffic, and high pressure gas is made to flow into a backpressure chamber from a discharged gas aisle side when a backpressure chamber pressure becomes lower than a setting pressure, and a backpressure chamber pressure does not become low too much. However, the consideration which always secures the amount of oil supply to a backpressure chamber was not made like the case of above-mentioned JP,57-76291,A, but this composition also had the same problem as the above. Then, this invention provides the scroll compressor excellent in low vibration, the low noise characteristic, and endurance by changing continuously the opening of the restriction passage between the backpressure chamber in the middle of an oil supply passage, and an inhalatorium (or compression space), and controlling a backpressure chamber pressure.

[0004]

[Means for Solving the Problem]In order to solve the above-mentioned problem a scroll compressor of this invention, Lubricous oil supply origin on which a discharged gas pressure acts has an oil supply passage which goes via a backpressure chamber of a turning scroll, and an inhalatorium (or compression space) one by one, An oil supply passage control device is arranged between a backpressure chamber in the middle of said oil supply passage, and an inhalatorium (or compression space), and an oil supply passage control

device is provided with an opening adjustment function to change an opening of the restriction passage continuously that a pressure differential between a backpressure chamber and an inhalatorium (or compression space) should be controlled in a setting range.

[0005]

[Function]Since the pressure of the lubricating oil as for which this invention flows into a backpressure chamber from lubricous oil supply origin immediately after start up by the above-mentioned composition at the time of the compressor cold since the discharge pressure is low for a while is also low, the opening of the restriction passage of an oil supply passage control device is small, and lessens lubricating oil quantity which flows out of a backpressure chamber into an inhalatorium (or compression space). By it, the pressure buildup of a backpressure chamber is brought forward, a turning scroll is stabilized at an early stage by early back pressure setting out, it protects with the butter of the turning scroll resulting from the shortage of back pressure, and generating of an abnormal noise and the anomalous attrition of a sliding part are prevented. Discharged gas goes up with the time progress after start up, and it follows on the pressure buildup of the lubricating oil which flows into a backpressure chamber from lubricous oil supply origin, An oil supply passage control device makes the lubricating oil quantity which extends the opening of the restriction passage gradually and flows out of a backpressure chamber into an inhalatorium (or compression space) increase, and controls a backpressure chamber pressure in a setting range, the proper thrust where the turning scroll to a fixed scroll was stabilized is maintained, and little quiet operation of a load change is made to continue.

[0006]

[Example]Hereafter, the scroll compressor of one example of this invention is explained, referring to drawings. Drawing 1 shows drawing of longitudinal section of the scroll refrigerating compressor in one example of this invention, and the detailed explanation figure of the A section [in / in drawing 2 / drawing 1]. The body frame by which 1 was carried out at sealing shell and press fit immobilization of 2 was carried out in drawing 1 at the sealing shell 1, It is 3, the bearing by which 4 was provided in the central part of the body frame 2, and the driving shaft which was open for free passage with the oil hole 6 in the oil hole 6 which 5 was supported movably by the bearings 3 and 4 and was penetrated, and the position which countered the bearing 4, and formed the oil hole 7, and the eccentric shaft part 8 is formed in the upper bed, and the lower end is extended and absorbed even in the sump 9 of the pars basilaris ossis occipitalis of the sealing shell 1. By the motor, the rotator 11 is carried out at the driving shaft 5, and, as for the stator 12, press fit immobilization of 10 is carried out at the sealing shell 1. It connects with the eccentric shaft part 8, the lap supported disc 15 of the turning scroll 14 which equipped the center with the bearing part 13 is formed in [the turning scroll lap 16 upright on the upper surface] one, and the undersurface is supported movably by the thrust-block seat 17 projected to the upper bed opening hole of the body frame 2. The turning scroll lap 16 has the turning scroll lap 16 which the plane shape makes a spiral, and the vertical section makes a rectangle, and adjoins each other in parallel relationship. Oldham ring 18 for rotation inhibition is the thing provided with the key part of the parallel-key shape which intersects perpendicularly with both sides of an even ring mutually, and is provided between the lap supported disc 15 and the thrust-block seat 17. To the key groove (not shown) established in the back of the lap supported disc 15, the key part by the side of the upper surface of this Oldham ring 18. The key part by the side of the undersurface is inserted in the key groove 19 established in the thrust-block seat 17, and by rotation of the driving shaft 5, the bearing part 13

of the lap supported disc 15 makes the circular motion around the axial center of the driving shaft 5, and circles in the turning scroll lap 16. the panel 21 of the fixed scroll 34 which plugged up the upper bed opening hole in the upper bed side of the body frame 2, and was made into the backpressure chamber 20 of the lap supported disc 15 sandwiches the turning scroll 14 in a very small crevice with the thrust-block seat 17 -- as -- attachment ********. It is divided with the lap supported disc 15, and the backpressure chamber 20 is divided into the backpressure chamber 20a of the peripheral face, and the backpressure chamber 20b by the side of the back. The annular inhalatorium 22 is established in the inside at the panel 21, it is still more nearly parallel to the turning scroll 16 to the inside, and the discharge port 25 which made the inside of the sealing shell 1 the discharge space 24 is established in the center of the swirl of the fixing scroll lap 23 of an isomorphism-like size, The balance passage 27 of the small hole which opens for free passage the balance passage 26, the backpressure chamber 20a, and the backpressure chamber 20b of the small hole which carries out an opening to a sliding surface with the lap supported disc 15, and opens the inhalatorium 22 and the backpressure chamber 20a for free passage is established in the panel 21 and the thrust-block seat 17, It is arranged, respectively so that it may be open for free passage, only when the lap supported disc 15 is in the predetermined turning-angles range (compression space is a suction stroke), As shown in drawing 2 in the middle of the balance passage 26, the case 40 is pressed fit in the panel 21, and it is constituted so that the both-ends opening of the balance passage 26 can be pinched, The upstream of the center section of the passage is equipped with the steel ball 41, the downstream is equipped with the coil spring 42, and the oil supply passage control device 43 is constituted, The coil spring 42 is always energizing the steel ball 41 so that it may move the steel ball 41 against the back pressure which acts on the steel ball 41 based on the pressure differential between the backpressure chamber 20 and the inhalatorium 22 and may change the opening of the balance passage 26 continuously. The suction pipe 28 which penetrated the sealing shell 1 from the side is connected to the annular inhalatorium 22, and the discharge tube 29 which carried out the opening toward the medial surface of the sealing shell 1 is connected to the upper surface of the sealing shell 1 in it. The slot 30 is established in the lateral surface of the body frame 2 by which press fit immobilization was carried out at the sealing shell 1, and this slot 30 is opening the near discharge space 24 of the panel 21 of the sealing shell 1, and the motor 10 side for free passage. About the scroll refrigerating compressor constituted as mentioned above, the operation is explained using drawing 1 and drawing 2 below. It is a detail view of the neighborhood A section of the balance passage [in / drawing 1 can be set in drawing of longitudinal section of a scroll refrigerating compressor, and / in drawing 2 / drawing 1] 26 first, If the rotator 11 rotates and the driving shaft 5 rotates by the motor 10, the turning scroll 14 will circle, A refrigerant gas is inhaled through the suction pipe 28 in the inhalatorium 22, and this refrigerant gas is shut up in the compression space formed between the turning scroll lap 16 and the fixing scroll lap 23, It is compressed with the circular movement of the turning scroll lap 16, and is breathed out from the discharge port 25 to the discharge space 24, The prudence separates from a refrigerant gas, some lubricating oils contained in a refrigerant gas are collected by the sump 9 of a pars basilaris ossis occipitalis through the slot 30 between the sealing shell 1 and the body frame 2, etc., and the remaining lubricating oils are taken out through the discharge tube 29 to an external refrigerating cycle with discharge refrigerant gas. Differential pressure oil supply from the sump 9 of the high-tension side which goes via the backpressure chamber 20 which was isolated from the discharge space 24 and formed of the panel 21 and the body frame 2 of the fixed scroll 34 on the other hand to the inhalatorium 22 of the low-tension side is performed as follows. That

is, after start up, for a while, the pressure differential between the backpressure chamber 20 and the inhalatorium 22 is small, and the opening of the balance passage 26 is extracted to the minimum state at the time of the compressor cold. The viscous low lubricating oil of the sump 9 of the pars basilaris ossis occipitalis of the sealing shell 1 filled with discharge refrigerant gas by passing the very small crevice between the oil holes 6 and 7 established in the driving shaft 5, the bearings 3 and 4 which support the driving shaft 5 movably, or the bearing part 13 of the eccentric shaft part 8. It is decompressed gradually and the backpressure chamber 20b is supplied in the state of the intermediate pressure of inhalatorium power and a discharge pressure. Furthermore, intermittent oil supply of the lubricating oil is carried out by circular movement of the lap supported disc 15 of the turning scroll 14 through the balance passage 27 of the small hole opened and closed intermittently in the backpressure chamber 20a. In connection with the pressure buildup of the backpressure chamber 20a, the opening of the balance passage 26 spreads gradually, every intermittent oil supply is carried out in small quantities in the inhalatorium 22, and the lubricating oil of the backpressure chamber 20a is again compressed and breathed out with an inhalation refrigerant gas. A discharge pressure goes up with the time progress after compressor start up, and the pressure of the increase of lubricating oil quantity which flows into the backpressure chamber 20 via the bearings 3 and 4 and the bearing part 13 from the sump 9, and the backpressure chamber 20 also rises. That the pressure differential between the backpressure chamber 20 and the inhalatorium 22 should be controlled in a setting range, an oil supply passage control device extends the opening of the restriction passage gradually, and the lubricating oil quantity which flows into the inhalatorium 22 increases it from the sump 9 gradually. Since the pressure of the backpressure chamber 20 of the back of the lap supported disc 15 can be freely set even to the state near suction pressure from the state near a discharge pressure by aisle resistance adjustment of an oil supply passage according to this differential pressure oil supply method, The load difference of the gas pressure load which acts on the back of the lap supported disc 15, and the gas pressure load in compression space can be adjusted freely, pushing the lap supported disc 15 against the panel 21 side by it can also be separated from the panel 21, and it can also be forced on the thrust-block seat 17 side. The lap supported disc 15 when the viscosity of lubricating oils, such as the time of steady operation, is low in this example so that thrust force may act to the panel 21 side, At the time of the cold, the aisle resistance of the balance passage 26 was adjusted and the lap supported disc 15 when the viscosity of lubricating oils, such as immediately after starting, is high is provided with the function of an oil supply passage control device so that thrust force may act to the thrust-block seat 17 side. This scroll refrigerating compressor is built into a heat pump type refrigerating cycle, Although a refrigerant gas tends to flow backwards [immediately after switching to a defrosting operation refrigerating cycle from a heating operation refrigerant cycle] from the inhalatorium 22 via the balance passages 27 and 27 to the backpressure chamber 20 on the relation from which regurgitation room pressure power will be in a low pressure state, and an inhalatorium pressure will be in a high pressure state, The steel ball 41 provided in the balance passage 26 closes a passage, it prevents that a refrigerant gas flows backwards to the sump 9 via the backpressure chamber 20, and the lubricous oil spill of the backpressure chamber 20 or a bearing sliding surface and printing of a sliding surface are prevented. Although it was the composition which the opening hole of the downstream of the balance passage 26 is opening for free passage at the end of the coil spring 42 in this example, the composition which is open for free passage near the center section of the coil spring 42 or near the side of the steel ball 41 as shown in drawing 3 may be used. In the above-mentioned example, although the oil

supply passage downstream of the backpressure chamber 20 was made into the inhalatorium, like the case of drawing 7, the oil supply passage downstream of the backpressure chamber 20 may be used as the compression space in a compression stroke, and the oil supply passage control device same in the middle of the oil supply passage as drawing 2 may be formed. The oil supply passage control device in this oil supply passage composition serves also as the check valve operation described below. That is, the pressure of the regurgitation room which is open for free passage in a compressor external piping system is low immediately after start up etc. at the time of the compressor cold, and since there is little lubricous oil flow ON from the sump 9 to the backpressure chamber 20, the pressure of the backpressure chamber 20 may be intermittently lower than the pressure of the compression space which is open for free passage to the backpressure chamber 20. For this reason, although the refrigerant gas in the middle of compression tends to flow into the backpressure chamber 20, a check valve operation of an oil supply passage control device protects the lubricous oil spill accompanying the refrigerant-gas blow by of the oil supply passage from the backpressure chamber 20 to the sump 9, and sliding part printing accompanying it. It also protects that a refrigerant gas flows backwards to the backpressure chamber 20 at the time of the compression space instant abnormal pressure rise (liquid compression phenomenon) which originates in compressing a refrigerant solution and a lot of lubricating oils in the middle of compression, and is produced. The increase in back pressure energizing force to the pressure buildup and the turning scroll 14 of the backpressure chamber 20 can be prevented, the turning scroll 14 can be made to be able to desert the fixed scroll 34 to shaft orientations, the nose dive of the compression space pressure can be carried out, and an overload mitigation operation can also be made to perform by that. The backpressure chamber of the very small crevice between the bearings 3 and 4 which support movably the sump 9 on which a discharged gas pressure acts, the oil holes 6 and 7 established in the driving shaft 5, and the driving shaft 5 as mentioned above according to the above-mentioned example, or the bearing part 13 of the eccentric shaft part 8, and the turning scroll 14 (the backpressure chamber 20b, the backpressure chamber 20a), Have an oil supply passage which goes via the inhalatorium 22 one by one, and the oil supply passage control valve device 43 which changes from the valve element of the steel ball 41 and the coil spring 42 which energizes it toward the upstream to the balance passage 26 which has the small hole part provided in the panel 21 between the backpressure chamber 20 in the middle of the oil supply passage and the inhalatorium 22 is arranged, By having had the opening adjustment mechanism to which the opening of the upstream passage of the balance passage 26 can be changed continuously that the oil supply passage control valve device 43 should control the pressure differential between the backpressure chamber 20 and the inhalatorium 22 in a setting range, Lubricating oil quantity which flows out of the backpressure chamber 20 into the inhalatorium 22 since the opening of the restriction passage of the oil supply passage control device 43 is small for a while immediately after start up in a discharge pressure being low and the pressure of the lubricating oil which flows into the backpressure chamber 20 from the sump 9 being low at the time of the compressor cold is made into the minimum, Lubricating oil reservation and pressure buildup of the backpressure chamber 20 can be brought forward by it. As a result, thrust loading to which the suction pressure in early stages of starting originates in a high thing, becomes excessive, and acts on the turning scroll 14 and the thrust-block seat 17 is reduced with back pressure, and the early oil supply to the thrust-block seat 17 can protect the fall of sliding part endurance. The setting pressure standup of the backpressure chamber 20 can protect with [, such as inclination of the turning scroll 14 resulting from back pressure instability, and axial movement]

butter early, and abnormal noise generating and sliding part endurance can be prevented. After a discharge pressure goes up with the time progress after start up, suction pressure declines and the backpressure chamber 20 reaches a setting pressure in connection with it, Since the lubricating oil quantity discharged from the backpressure chamber 20 to the inhalatorium 22 is controlled continuously, even when a discharge pressure carries out an abnormal pressure rise, it is followed, proper back pressure is made, the compressor operation which lessened compression load change and back pressure change, and was stabilized is made to continue, and things are made.

[0007]

[Effect of the Invention]By this invention, the lubricous oil supply origin on which a discharged gas pressure acts has an oil supply passage which goes via a backpressure chamber and an inhalatorium (or compression space) one by one as mentioned above, The oil supply passage control device has been arranged between the backpressure chamber in the middle of an oil supply passage, and an inhalatorium (or compression space), and the oil supply passage control device was provided with the opening adjustment mechanism to which the opening of the restriction passage is changed continuously that the pressure differential between a backpressure chamber and an inhalatorium (or compression space) should be controlled in a setting range.

Therefore, even when the discharge pressure immediately after start up is low at the time of the compressor cold and the pressure of the lubricating oil which flows into the backpressure chamber 20 from lubricous oil supply origin is comparatively low. Since the opening of the restriction passage of an oil supply passage control device is small, lubricating oil quantity which flows out of a backpressure chamber into an inhalatorium can be lessened, and lubricating oil fullness of a backpressure chamber and a pressure buildup can be brought forward by it.

As a result, the setting pressure standup of a backpressure chamber can be brought forward, it can protect with [, such as inclination to the fixed scroll and driving shaft of a turning scroll resulting from back pressure instability, and axial movement,] butter by the buffer action of an oil film, abnormal noise generating from a sliding part and wear can be prevented, and endurance can be raised. After a discharge pressure goes up, it follows it and the differential pressure between a backpressure chamber and an inhalatorium (or compression space) arrives at a setting range, Since the lubricating oil quantity discharged from a backpressure chamber to an inhalatorium (or compression space) is controlled continuously, There is also no intermittent discharging noise of gas or a lubricating oil, even when a discharge pressure carries out an abnormal pressure rise, it is followed, a backpressure chamber pressure is continuously controlled to an appropriate range, sudden fluctuation of compression load or back pressure is lessened, and many outstanding effects which can realize low vibration and low noise operation are done so.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]Drawing of longitudinal section of the scroll refrigerating compressor in the 1st example of this invention
[Drawing 2]The A section sectional view in drawing 1
[Drawing 3]The fragmentary sectional view of the scroll refrigerating compressor in which other examples different, respectively in this invention are shown
[Drawing 4]The fragmentary sectional view of the scroll refrigerating compressor in which other examples different, respectively in this invention are shown
[Drawing 5]Drawing of longitudinal section of the conventional scroll compressor different, respectively
[Drawing 6]Drawing of longitudinal section of the conventional scroll compressor different, respectively
[Description of Notations]
1 Sealing shell
2 Body frame
5 Driving shaft
10 Motor
14 Turning scroll
15 Lap supported disc
16 Turning scroll lap
20 Backpressure chamber
21 Panel
22 Inhalatorium
23 Fixing scroll lap
25 Discharge port
26 and 27 Balance passage
34 Fixed scroll
41 Steel ball
42 Coil spring
43 Oil supply passage control device

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CLAIMS

[Claim(s)]

[Claim 1]A turning scroll lap on a lap supported disc which makes a part of turning scroll to a spiral fixing scroll lap formed in the whole surface of a panel which makes a part of fixed scroll is engaged, Form an inhalatorium in the outside of said fixing scroll lap, and said lap supported disc, It is arranged in the state of **** in a backpressure chamber of said turning scroll which was formed between a body frame which supports a driving shaft movably, and said panel, and led to lubricous oil supply origin of the outside of said body frame, Furthermore, via a rotation blocking mechanism of said lap supported disc, it is supported movably so that revolution is possible, A scroll type compressor style which compressed a fluid using capacity change of compression space formed between said fixing scroll lap and said turning scroll is formed, Said lubricous oil supply origin on which a discharge pressure acts has an oil supply passage which goes via said backpressure chamber, said inhalatorium, or said compression space one by one, Arrange an oil supply passage control device between said backpressure chamber in the middle of said oil supply passage, said inhalatorium, said compression space or said backpressure chamber, and said lubricous oil supply origin, and said oil supply passage control device, A scroll compressor provided with an opening adjustment function to change an opening of the restriction passage continuously that a pressure differential between said backpressure chamber, said inhalatorium, or said compression space should be controlled in a setting range.

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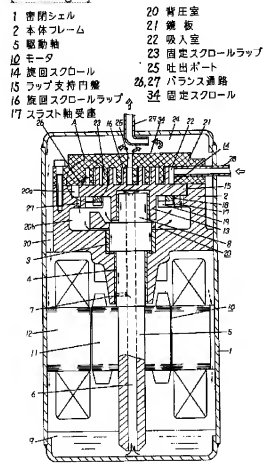
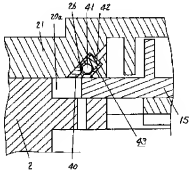
DRAWINGS

[Drawing 1]

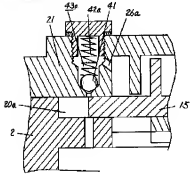


[Drawing 2]

21 鏡 板
26, 26a バランス通路
41 鋼 球
42, 42a コイルバネ
43, 43a 給油通路制御装置

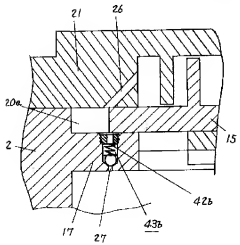


[Drawing 3]

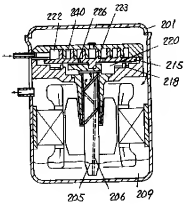


[Drawing 4]

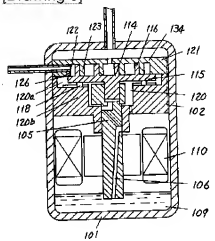
5 駆動軸
6 油 穴
8 偏心軸部
17 スラスト軸受座
21 鏡 板
26, 27 バランス通路
42b, 42c コイルバネ
43b, 43c 給油通路制御装置



[Drawing 6]



[Drawing 5]



[Translation done.]